

anesthesia and minimal premedication. They are well tolerated by patients. Patients avoid the risk of a major operation and anesthesia. Hospital stay, hospital costs and nursing care are reduced for these patients. Morbidity and recurrence of drained abscesses are less frequent than in those patients having surgical drainage.

All patients should have a surgical consultation because a complication or inadequate drainage may necessitate a surgical procedure. Contraindications include coagulation problems, an unsafe percutaneous route and some multiloculated collections that would require placing multiple catheters. Major complications include sepsis, enteric fistulas and laceration of blood vessels.

The therapeutic success rate of percutaneous abscess drainage has been as high as 90%. Percutaneous abscess drainage should be considered as a therapeutic approach when treating a patient with possible intra-abdominal abscess and radiographic evidence of intra-abdominal fluid collection.

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## Needle Biopsy

RECENT ADVANCES in radiology, along with the technologic development of the "skinny" Chiba needle, have contributed to the current acceptance of the radiologically guided percutaneous needle biopsy. Cystic or solid lesions suspected of being malignant tumor, abscess or hematoma can be so diagnosed, thereby precluding the morbidity of an exploratory laparotomy. This procedure is particularly helpful when the likely diagnosis is a surgically noncurable malignancy or the patient is severely ill and a poor surgical candidate.

The Chiba needle is a 22-gauge thin-walled flexible steel needle with a 30-degree noncutting bevel and an inner fitted stylet. It and other needles similarly developed can generally yield enough aspirate for cytologic diagnosis.

Large lesions can be readily aspirated using either ultrasound (in the abdomen and pelvis) or fluoroscopy (in the chest). Smaller (2 cm or less) lesions or those near a vital organ can be reached with the guidance of computed tomography (CT). The three-dimensional aspects of ultrasound and CT enable the optimal path for needle placement to be selected, especially when the most direct path would involve passage through a vital organ. Computed measurement will indicate the

desired depth of needle placement and angle of introduction.

As several specimens are often obtained, a second needle may be placed alongside the initially placed needle, using it as a guide. With this method reimaging of subsequent needle placements is often not necessary.

Aspirates obtained are immediately examined by an experienced cytologist—an absolutely vital step to this procedure. If samples are inadequate, the needle can be readjusted appropriately. "Failed" aspirates are often due to samples being taken from the necrotic center of a lesion.

Needle biopsy with the thin-walled flexible needles has proved to be a safe, quick and accurate method for defining the cause of chest, abdominal and pelvic masses. It may often obviate a surgical procedure and assist clinicians in an expedient manner in determining the most appropriate therapy.

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## Vascular Occlusive Therapy

VESSELS CAN BE occluded for therapeutic purposes by using intravascular techniques. With these techniques angiographic catheter systems are used to deliver emboli or vasoconstrictors to the desired location. Among the situations that may be amenable to this form of treatment are arteriovenous malformations and fistulae, vascular tumors, vascular injuries, organ ablation and hemorrhaging.

Advantages of this type of therapy include decreased morbidity when compared with surgical alternatives and prompt application. At the time of initial diagnostic angiography, if a lesion is found it can be treated at the same sitting. In some cases the anatomic location of a lesion or a patient's clinical state makes surgical management impossible or unacceptably hazardous; vascular occlusion may be effective in such cases. It can also be used as an adjunct to surgical or medical care. Decreasing the vascularity of tumors or vascular malformations can make a surgical procedure easier in some cases. Hemorrhaging from unresectable tumors, the gastrointestinal tract and vascular injuries can be controlled.

A disadvantage of vascular occlusive therapy is that previous angiographic experience with catheter manipulations is necessary unless the vessels to be occluded are entered by direct surgical exposure. These techniques also carry more risk than routine angiography and risk versus benefit should be carefully weighed in